

Project: USACE Former NPD Lab Site Investigation

Project Location: Troutdale, Oregon

Project Number: 53-F0074212

Log of Boring SS-013

Sheet 1 of 1

| | | | | | |
|-------------------|------------------------|---------------------|-----------------------------------|--------------------------|--------------|
| Date(s) Drilled | 9/5/01 | Logged By | ALZ | Checked By | JAR |
| Drilling Method | Geoprobe®, direct push | Drilling Contractor | Geotech, Inc. | Total Depth of Borehole | 16 feet |
| Drill Rig Type | GP-1 | Drill Bit Size/Type | | Ground Surface Elevation | 36.83 ft msl |
| Groundwater Level | 12 ft bgs | Sampling Method | Acetate Lined Split Spoon Sampler | Hammer Data | 175 lb |
| Borehole Backfill | Hydrated Bentonite | Location | Former Dry Well Area | | |

| Elevation, feet | Downhole Depth, feet | SAMPLES | | | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|-----------------|----------------------|---------|--------------|-----------|------|--|--------------------------------------|
| | | Type | Recovery (%) | OVM (ppm) | | | |
| 0 | | | | | SP | Gray SAND (dry) (no odor, no stain) | 13:00 |
| | 1 | | | | | | |
| | 5 | 2 | | | | Same as above | |
| | | | | | | Same as above | Break 13:15 Resume 13:45 |
| | 10 | 3 | | | | Grading dark gray, coarse to fine, angular Small cemented portions of sand (moist) (no odor) | SS-013-10 Slightly stiff drilling |
| | | | | | ML | Dark gray SILT with trace sand (non plastic) (grading wet) (no odor, no stain) | |
| | 15 | 4 | | | | | |
| | | | | | | Same as above | SS-013-12 14:15 |
| | | | | | | Boring was completed to 16' bgs. Groundwater was encountered at 12' bgs. Boring was backfilled with bentonite. | |
| | 20 | | | | | | |
| | 25 | | | | | | |
| | 30 | | | | | | |

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|---|---|
| Project: USACE Former NPD Lab Site Investigation Project Location: Troutdale, Oregon Project Number: 53-F0074212 | Log of Boring SS-014 Sheet 1 of 1 |
|---|---|

| | | |
|---|--|--|
| Date(s) Drilled 9/6/01 | Logged By ALZ | Checked By JAR |
| Drilling Method Geoprobe®, direct push | Drilling Contractor Geotech, Inc. | Total Depth of Borehole 4 feet |
| Drill Rig Type GP-1 | Drill Bit Size/Type | Ground Surface Elevation 39.13 ft msl |
| Groundwater Level Not encountered | Sampling Method Acetate Lined Split Spoon Sampler | Hammer Data 175 lb |
| Borehole Backfill Hydrated Bentonite | Location Cleanout Pipe | |

| Elevation, feet | Downhole Depth, feet | SAMPLES | | | | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|-----------------|----------------------|---------|--------|--------------|-----------|-------------|--|-------------------------|
| | | Type | Number | Recovery (%) | OVM (ppm) | Graphic Log | | |
| | 0 | | | | | | | |
| | | | 1 | | 0 | | Olive-gray SILT with some sand, organic matter (dry) (no odor, no sheen) | 11:20 |
| | | | | | | | | |
| | | | | | | | Gray, coarse, angular SAND (dry) (no sheen) | SS-014-04 |
| | | | | | | | Black seam at 3.5' bgs (no odor, no sheen) | 11:30 |
| | 5 | | | | | | Boring was completed to 4' bgs. Groundwater was not encountered. Boring was backfilled with bentonite. | |
| | | | | | | | | |
| | 10 | | | | | | | |
| | | | | | | | | |
| | 15 | | | | | | | |
| | | | | | | | | |
| | 20 | | | | | | | |
| | | | | | | | | |
| | 25 | | | | | | | |
| | | | | | | | | |
| | 30 | | | | | | | |

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Project: USACE Former NPD Lab Site Investigation

Project Location: Troutdale, Oregon

Project Number: 53-F0074212

Log of Boring SS-015

Sheet 1 of 1

| | | | | | |
|-------------------|------------------------|---------------------|-----------------------------------|--------------------------|--------------|
| Date(s) Drilled | 9/5/01 | Logged By | ALZ | Checked By | JAR |
| Drilling Method | Geoprobe®, direct push | Drilling Contractor | Geotech, Inc. | Total Depth of Borehole | 5 feet |
| Drill Rig Type | GP-1 | Drill Bit Size/Type | | Ground Surface Elevation | 38.86 ft msl |
| Groundwater Level | Not encountered | Sampling Method | Acetate Lined Split Spoon Sampler | Hammer Data | 175 lb |
| Borehole Backfill | Hydrated Bentonite | Location | Cleanout Pipe | | |

| Elevation, feet | Downhole Depth, feet | SAMPLES | | | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|-----------------|----------------------|---------|--------------|-----------|------|--|----------------------------------|
| | | Type | Recovery (%) | OVM (ppm) | | | |
| 0 | | | | | ML | Black SILT, organic matter (non plastic) (moist) | |
| | | | | | ML | Gray to light gray, sandy SILT with some coarse sand fragments | 11:40 |
| | | 1 | | 0 | SP | Gray, coarse, angular SAND with trace silt (dry) (no odor, some black stain at 4.5') SS-015-05 | SS-015-05 |
| 5 | | | | | | | 11:50 |
| | | | | | | Boring was completed to 5' bgs. Groundwater was not encountered. Boring was backfilled with bentonite. | Recovery compressed but complete |
| 10 | | | | | | | |
| 15 | | | | | | | |
| 20 | | | | | | | |
| 25 | | | | | | | |
| 30 | | | | | | | |

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Project: USACE Former NPD Lab Site Investigation

Project Location: Troutdale, Oregon

Project Number: 53-F0074212

Log of Boring SS-016

Sheet 1 of 1

| | | | | | |
|-------------------|------------------------|---------------------|-----------------------------------|--------------------------|--------------|
| Date(s) Drilled | 9/5/01 | Logged By | ALZ | Checked By | JAR |
| Drilling Method | Geoprobe®, direct push | Drilling Contractor | Geotech, Inc. | Total Depth of Borehole | 5 feet |
| Drill Rig Type | GP-1 | Drill Bit Size/Type | | Ground Surface Elevation | 38.38 ft msl |
| Groundwater Level | Not encountered | Sampling Method | Acetate Lined Split Spoon Sampler | Hammer Data | 175 lb |
| Borehole Backfill | Hydrated Bentonite | Location | Cleanout Pipe | | |

| Elevation, feet | Downhole Depth, feet | SAMPLES | | | | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|-----------------|----------------------|---------|--------|--------------|-----------|-------------|---|----------------------------------|
| | | Type | Number | Recovery (%) | OVM (ppm) | Graphic Log | | |
| 0 | | | | | | | Dark gray SILT, organic matter (fill) Brown, silty, coarse, angular SAND with trace gravel (fill) (no odor, no stain) | 12:00 |
| | | | 1 | | | | | SS-016-05 |
| 5 | | | | | | | Same as above Boring was completed to 5' bgs. Groundwater was not encountered. Boring was backfilled with bentonite. | Recovery compressed but complete |
| 10 | | | | | | | | |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

Project: USACE Former NPD Lab Site Investigation
Project Location: Troutdale, Oregon
Project Number: 53-F0074212

Log of Boring SS-021

Sheet 1 of 1

| | | | | | |
|-------------------|------------------------|---------------------|-----------------------------------|--------------------------|--------------|
| Date(s) Drilled | 9/7/01 | Logged By | ALZ | Checked By | JAR |
| Drilling Method | Geoprobe®, direct push | Drilling Contractor | Geotech, Inc. | Total Depth of Borehole | 8 feet |
| Drill Rig Type | GP-1 | Drill Bit Size/Type | | Ground Surface Elevation | 37.78 ft msl |
| Groundwater Level | Not encountered | Sampling Method | Acetate Lined Split Spoon Sampler | Hammer Data | 175 lb |
| Borehole Backfill | Hydrated Bentonite | Location | Former Fuel Oil Tank Vault | | |

| Elevation, feet | Downhole Depth, feet | SAMPLES | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|-----------------|----------------------|---------|--------|--------------|-------------|------|---|-------------------------|
| | | Type | Number | Recovery (%) | | | | |
| 0 | | | | | | | Asphalt pavement | |
| | | | 1 | 0 | | SM | Brown SAND with some silt and gravel (loose) (moist) (no odor, no stain) (fill) | 8:20 |
| | | | | | | | Concrete rubble | Difficult drilling |
| | | | | | | SM | Dark brown with some dark brown to black layers, well graded SAND with some gravel and silt, asphalt fragments (loose) (moist) (no odor) (native) | deflects sampler |
| 5 | | | 2 | 0 | | | | SS-021-04 |
| | | | | 0 | | | | SS-321-04 |
| | | | | 0 | | | | 9:00 |
| 10 | | | | | | | Same as above (moist) (no odor) | |
| | | | | | | | Boring was completed to 8' bgs. | Borings duplicated for |
| | | | | | | | Groundwater was not encountered. | volume/refusal four |
| | | | | | | | Boring was backfilled with bentonite and capped with concrete. | times |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

Project: USACE Former NPD Lab Site Investigation

Project Location: Troutdale, Oregon

Project Number: 53-F0074212

Log of Boring SS-030

Sheet 1 of 1

| | | | | | |
|-------------------|------------------------|---------------------|-----------------------------------|--------------------------|--------------|
| Date(s) Drilled | 9/6/01 | Logged By | ALZ | Checked By | JAR |
| Drilling Method | Geoprobe®, direct push | Drilling Contractor | Geotech, Inc. | Total Depth of Borehole | 12 feet |
| Drill Rig Type | GP-1 | Drill Bit Size/Type | | Ground Surface Elevation | 36.84 ft msl |
| Groundwater Level | 10.5 ft bgs | Sampling Method | Acetate Lined Split Spoon Sampler | Hammer Data | 175 lb |
| Borehole Backfill | Hydrated Bentonite | Location | Former Dry Well Area | | |

| Elevation, feet | Downhole Depth, feet | SAMPLES | | | | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|-----------------|----------------------|---------|--------|--------------|-----------|-------------|--|-----------------------------|
| | | Type | Number | Recovery (%) | OVM (ppm) | Graphic Log | | |
| 0 | | | | | | | | |
| | | | 1 | | 0 | | ML Brown SILT with some organic debris (loose) (non-plastic) (dry) (fill) | 15:35 |
| | | | | | | | SM Grading to gray, coarse SAND with some silt and gravel (loose) (moist) (no odor, some oxidized iron stains) | Some sloughing from surface |
| 5 | | | 2 | | 0 | | | 15:50 |
| | | | | | | | Same as above (no odor, no stain) | SS-030-10 |
| 10 | | | 3 | | | | | 10.5 ft ▼ |
| | | | | | | | Same as above (wet) (no odor, no stain) Boring was completed to 12' bgs. Groundwater was encountered at 10.5' bgs. Boring was backfilled with hydrated bentonite. | 16:05 |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

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Project: USACE Former NPD Lab Site Investigation

Project Location: Troutdale, Oregon

Project Number: 53-F0074212

Log of Boring SS-031

Sheet 1 of 1

| | | | | | |
|-------------------|------------------------|---------------------|-----------------------------------|--------------------------|--------------|
| Date(s) Drilled | 9/6/01 | Logged By | ALZ | Checked By | JAR |
| Drilling Method | Geoprobe®, direct push | Drilling Contractor | Geotech, Inc. | Total Depth of Borehole | 12 feet |
| Drill Rig Type | GP-1 | Drill Bit Size/Type | | Ground Surface Elevation | 36.82 ft msl |
| Groundwater Level | 10.5 ft bgs | Sampling Method | Acetate Lined Split Spoon Sampler | Hammer Data | 175 lb |
| Borehole Backfill | Hydrated Bentonite | Location | Former Dry Well Area | | |

| Elevation, feet | Downhole Depth, feet | SAMPLES | | | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|-----------------|----------------------|---------|--------|--------------|------|---|-------------------------|
| | | Type | Number | Recovery (%) | | | |
| 0 | | | | | ML | Brown to light brown SILT with some sand, some organic debris (non plastic) (loose) (dry) (no odor, no stain) | 16:10 |
| | 1 | | | 0 | SM | Gray with some oxidized iron stains, silty, coarse SAND with some gravel (moist at 5' bgs) | |
| 5 | 2 | | | | | | 16:20 |
| | 3 | | | 0 | | Same as above (wet) (no odor, no stain) | SS-031-10 |
| 10 | | | | | ML | Brown SILT (low plasticity) (wet) (no odor, no stain) | 16:40 |
| | | | | | | Boring was completed to 12' bgs. Groundwater was encountered at 10.5' bgs. Boring was backfilled with hydrated bentonite. | |
| 15 | | | | | | | |
| 20 | | | | | | | |
| 25 | | | | | | | |
| 30 | | | | | | | |

Project: USACE Former NPD Lab Site Investigation

Project Location: Troutdale, Oregon

Project Number: 53-F0074212

Log of Boring SS-032

Sheet 1 of 1

| | | | | | |
|-------------------|------------------------|---------------------|-----------------------------------|--------------------------|--------------|
| Date(s) Drilled | 9/7/01 | Logged By | ALZ | Checked By | JAR |
| Drilling Method | Geoprobe®, direct push | Drilling Contractor | Geotech, Inc. | Total Depth of Borehole | 16 feet |
| Drill Rig Type | GP-1 | Drill Bit Size/Type | | Ground Surface Elevation | 38.93 ft msl |
| Groundwater Level | 14 ft bgs | Sampling Method | Acetate Lined Split Spoon Sampler | Hammer Data | 175 lb |
| Borehole Backfill | Hydrated Bentonite | Location | Background Area | | |

| Elevation, feet | Downhole Depth, feet | SAMPLES | | | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|-----------------|----------------------|---------|--------|--------------|----------|---|-------------------------|
| | | Type | Number | Recovery (%) | | | |
| 0 | | | | | | Asphalt | |
| | | | 1 | 0 | GM SM | Gray, sandy GRAVEL (loose) (dry) (no odor, no stain) (fill) Brown to dark brown with some oxidized iron stains, silty SAND with some gravel (moist) (no odor, no stain) (native) | 10:00 SS-032-01 |
| 5 | | | 2 | 0 | | Same as above | 9" slough in sampler |
| 10 | | | 3 | 0 | | Same as above | 10:20 |
| 15 | | | 4 | 0 | | Same as above, decreasing silt (wet) | 14 ft ▼ SS-032-14 |
| | | | | | | Boring was completed to 16' bgs. Groundwater was encountered at 14' bgs. Boring was backfilled with bentonite and capped with concrete. | 10:35 |
| 20 | | | | | | | |
| 25 | | | | | | | |
| 30 | | | | | | | |

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| | | | | | | | | | | | | | | |
|--|-----------------------------|---|--|--------------------------------|--|--|--|--|------------------------|--|--------------|---------------------|-----------------------------|--|
| Project Name: <u>Former NPD Lab</u> | | Log of Trench: <u>TR-1</u> | | GW Field Parameters: <u>NA</u> | | | | | Meter/test kit: _____ | | Model: _____ | | Calib. Date: <u>9/10/01</u> | |
| Location: <u>Troutdale, OR</u> | | Segment No.: <u>-</u> | | Sample No. _____ | | | | | PID: <u>Photovac</u> | | | | | |
| Project/Task No.: <u>53F0074212.02</u> | | Approx. Surface Elev.: _____ | | Temperature _____ | | | | | Temperature: <u>NA</u> | | | | | |
| Date: <u>9/10/01</u> | | Depth to Water: <u>not encountered</u> | | pH _____ | | | | | pH: _____ | | | | | |
| Weather: <u>Sunny 80°F</u> | | Comments: _____ | | Conductivity _____ | | | | | Conductivity: _____ | | | | | |
| Loggers/Samplers: <u>J. R. ...</u> | | | | ORP _____ | | | | | ORP: _____ | | | | | |
| Contractor: <u>Anderson Env't.</u> | | | | DO _____ | | | | | DO: _____ | | | | | |
| Excavation Eqt.: <u>CAT 312B excavator</u> | | | | Turbidity _____ | | | | | Turbidity: <u>✓</u> | | | | | |
| Sampling Method: <u>syringe, SS bowl/spoon from excav bucket</u> | | | | Time _____ | | | | | | | | | | |
| Length (ft): <u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> | | | | | | | | | Field Test Results: | | | | | |
| Sample No. | Depth (ft) (Ground Surface) | | | | | | | | | | | PID | Other | |
| | <u>Blankberries</u> | | | | | | | | | | | | | |
| | <u>1</u> | <u>Dark brown sandy gravel up to 5" debris such as (6-10" diam.) concrete</u> | | | | | | | | | | | | |
| | <u>2</u> | <u>cores, black plastic buckets (such as for plants), plastic</u> | | | | | | | | | | | | |
| | <u>3</u> | <u>sheeting (white & black), plastic container with clay(?), metal 5 gal. buckets</u> | | | | | | | | | | | | |
| <u>SS-026-04</u> | <u>4</u> | <u>Cobbles up to 8" diameter; possible concrete test pour or large</u> | | | | | | | | | | | | |
| <u>SS-026-05</u> | <u>5</u> | <u>chunk of concrete [55 gal. drum of diesel, mostly empty]</u> | | | | | | | | | | <u>drum: 60 ppm</u> | | |
| | <u>6</u> | | | | | | | | | | | | | |
| <u>SS-026-07</u> | <u>7</u> | <u>Native material: Silty fine to medium sand, brown.</u> | | | | | | | | | | | | |
| | <u>8</u> | <u>(Base of trench)</u> | | | | | | | | | | | | |
| | <u>9</u> | | | | | | | | | | | | | |
| | <u>10</u> | | | | | | | | | | | | | |
| | <u>11</u> | | | | | | | | | | | | | |
| | <u>12</u> | | | | | | | | | | | | | |
| | <u>13</u> | | | | | | | | | | | | | |
| | <u>14</u> | | | | | | | | | | | | | |
| | <u>15</u> | | | | | | | | | | | | | |

| Containers: | | | | | | | Comments: <u>Removed 2 drums from trench TR-1.</u> |
|----------------------|--------|------------------|---------------------|----------|-------------|------|--|
| Analysis | Matrix | Type | (Each) #-Primary | #-MS/MSD | #-Duplicate | #-PE | |
| VOCs | Soil | <u>Preserved</u> | <u>3</u> | / | / | / | |
| SVOCs | | <u>VOCS</u> | <u>1</u> | | | | |
| Pest. & PCBs | | <u>preserved</u> | <u>1</u> | | | | |
| metals | | <u>8oz jar</u> | <u>1</u> | | | | |
| cyanide | | | | | | | |
| TPH (SS-026-05 only) | | | | | | | |

| | | | | | | | | | | | | | | | |
|---|--|--|--|--|--|---|--|---|------------------------|---|--------------|---|--------------------|---|--|
| Project Name: <u>Former NPD Lab SI</u> | | Log of Trench: <u>TR-2</u> | | GW Field Parameters: <u>NA</u> | | | | | Meter/test kit: _____ | | Model: _____ | | Calib. Date: _____ | | |
| Location: <u>Troutdale, OR</u> | | Segment No.: _____ | | Sample No. _____ | | | | | PID: <u>Photovac</u> | | 9/11/01 | | | | |
| Project/Task No.: <u>5360074212.02</u> | | Approx. Surface Elev.: _____ | | Temperature _____ | | | | | Temperature: <u>NA</u> | | | | | | |
| Date: <u>9/11/01</u> | | Depth to Water: <u>not encountered</u> | | pH _____ | | | | | pH: _____ | | | | | | |
| Weather: <u>Sunny 80°F</u> | | Comments: _____ | | Conductivity _____ | | | | | Conductivity: _____ | | | | | | |
| Loggers/Samplers: <u>Jane He Rau</u> | | | | ORP _____ | | | | | ORP: _____ | | | | | | |
| Contractor: <u>Anderson Environ.</u> | | | | DO _____ | | | | | DO: _____ | | | | | | |
| Excavation Eqpt.: <u>CAT 32B excav.</u> | | | | Turbidity _____ | | | | | Turbidity: <u>✓</u> | | | | | | |
| Sampling Method: <u>Syringe, SS bowl & spoon from excav. bucket</u> | | | | Time _____ | | | | | | | | | | | |
| Length (ft): <u>0'</u> | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | |
| Sample No. | | Depth (ft) (Ground Surface) | | blackberries | | | | | | | | | | | |
| | | 1 | | Dark brown sandy gravel (up to 5" diameter), debris such | | | | | | | | | | | |
| | | 2 | | as concrete pieces, (large, up to 4'x4'x1'), concrete cylinders, | | | | | | | | | | | |
| | | 3 | | black plastic containers, plastic sheeting. | | | | | | | | | | | |
| SS-027-04 | | 4 | | | | | | | | | | | | | |
| | | 5 | | Size and amount of concrete pieces, and general amount | | | | | | | | | | | |
| | | 6 | | of debris increases ~5' bgs to base of trench. | | | | | | | | | | | |
| | | 7 | | | | | | | | | | | | | |
| | | 8 | | | | | | | | | | | | | |
| | | 9 | | | | | | | | | | | | | |
| | | 10 | | | | | | | | | | | | | |
| | | 11 | | | | | | | | | | | | | |
| | | 12 | | Native material: Silty fine to medium sand, brown, some organic | | | | | | | | | | | |
| SS-027-13 | | 13 | | Base of trench | | | | | | | | | | | |
| | | 14 | | | | | | | | | | | | | |
| | | 15 | | | | | | | | | | | | | |

| | | | | | | | | | |
|--------------|--------|-----------|---------------------|----------|-------------|------|--------------------------------|-------------------------------------|--|
| Containers: | | | | | | | | Comments | |
| Analysis | Matrix | Type | (each) #-Primary | #-MS/MSD | #-Duplicate | #-PE | QA/QC sample designations: | No drums encountered in this trench | |
| VOCs | soil | preserved | 3 | | 3 | | Duplicate: <u>SS-327-04</u> | | |
| SVOCs | | 8 oz. | 1 | | 1 | | PE: _____ | | |
| Pest. & PCBs | | | | | | | MS/MSD: <u>SS-027-0 JAR --</u> | | |
| Metals | | | | | | | Blank: _____ | | |
| Cyanide | | | | | | | | | |
| TPH | | | | | | | | | |